Format No: CP/TF/01

TEST REPORT OF PHYSICAL PROPERTIES OF CEMENT - 53 Grade

Lab ID	:	**CP-2019-03-06-20** **Date: 31-01-19**
Customer	:	Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP, Bangalore.
Address	:	Byatarayanapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements of Drains and Construction of Culverts in Hegadenagara, Thanisandra and Saraipalya Surrounding Area in Ward No. 06 Byatarayanapura Sub Division (2nd Call)
Agency	:	Sri. B. Girish, No.227, 32 A Cross, 7th Block, Jayananagara, Bangalore-560011.
Customer's Reference	:	BBMP/EE/BTP/WO/213/2018-19
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	28-01-19
Sample Type	:	Birla Super 53grade
Reference to BIS codes	:	IS 12269 : 2013, 53 Grade Ordinary Portland cement Specification , IS 4031 (Part 1,2 3,4,5, 6,11):1988 IS 4031 Part 1 DETERMINATION OF FINENESS BY DRY SIEVING, Clause 4.4 IS 4031 Part 2, Determination of Fineness by Blaine Air Permeability Method, Clause 5 IS 4031 Part 3, Determination of Soundness, Clause 5,Clause 6 IS 4031 Part 4, Determination of Consistency of Standard Cement Paste, Clause 5 IS 4031 Part 5, Determination of Initial & Final Setting Time, Clause 5 IS 4031 Part 11,DETERMINATION OF DENSITY , Clause 6
Date of test	:	29-01-19
Environmental Conditions during test	:	Temperature: 26°C Humidity: 72%

Sl.No.	Physical properties	Results	Requirement as per IS 12269: 2013
1	Fineness by dry sieving (%)	1.95	–
2	Finess by Air permeablity method (m^2/kg,Min)	285.4	225m^2/kg, Min
3	Density (gm/cc)	3.15	–
4	Standard Consistency (%)	29.0%	Not specified
5	Initial Setting time	155 minutes	Not less than 30 minutes
6	Final Setting time	240 minutes	Not more than 600 minutes
7	Soundness (Le Chatelier's Method)	1.0mm	Not more than 10 mm

Note:

The results pertain to the samples received and tested.

All information furnished by Customer/Representative

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TEST REPORT ON COARSE AGGREGATES

Lab ID	:	**CP-2019-03-06-20** **Date: 01-02-19**
Customer	:	Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP, Bangalore.
Address	:	Byatarayanapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements of Drains and Construction of Culverts in Hegadenagara, Thanisandra and Saraipalya Surrounding Area in Ward No. 06 Byatarayanapura Sub Division (2nd Call)
Agency	:	Sri. B. Girish, No.227, 32 A Cross, 7th Block, Jayananagara, Bangalore-560011.
Customer's Reference	:	BBMP/EE/BTP/WO/213/2018-19
Source of Sample	:	Sample supplied by Agency
Sample condition	:	Satisfactory
Date of Receipt	:	28-01-19
Sample Type	:	40mm down size coarse aggregate
Reference to BIS codes	:	IS: 383:2016 (Specification for Coarse and fine Aggregates) IS: 2386 :1963(Part - 1,3,4) RA2011 IS 2386 Part 1: Particle Size and Shape IS 2386 Part 3: Specific gravity, Density, Voids,Water Absorption IS 2386 Part 4: Mechanical Properties
Date of test	:	29-01-19

SIEVE ANALYSIS (PARTICLE SIZE DISTRIBUTION) OF 40MM DOWN COARSE AGGREGATE:

Total weight taken : 15000 grams

Sample No.	Sieve No.	Weight Retained in gms	Cumulative Weight Retained in gms	% Cumulative Weight Retained	% Passing	Required as per IS 383:2016
1	80 mm	0	0	0.0	100	100
2	40 mm	255	255	1.7	98.3	90-100
3	20 mm	5423	5678	37.9	62.1	30-70
4	10 mm	4132	9810	65.4	34.6	10-35
5	4.75 mm	4855	14665	97.8	2.2	0-5
6	Pan	335	15000	100.0	0	---

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TEST REPORT ON COARSE AGGREGATES

Lab ID : **CP-2019-03-06-20** **Date: 01-02-19**

PHYSICAL PROPERTIES

Sl.no	Tests	Result	Requirements as per IS:383-2016
1	Flakiness Index(%)	12.5	Combined Flakiness & Elongation Index Shall not Exceed 40% for Uncrushed & Crushed Aggregate
2	Elongation Index(%)	11.9	
3	Specific Gravity	2.68	–
4	Bulk Density(Loose) (Kg/l)	1.49	–
5	Bulk Density(Compacted) (Kg/l)	1.53	–
6	Water Absorption(%)	0.22	–

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TEST REPORT ON COARSE AGGREGATES

Lab ID	:	**CP-2019-03-06-20** **Date: 31-01-19**
Customer	:	Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP, Bangalore.
Address	:	Byatarayanapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements of Drains and Construction of Culverts in Hegadenagara, Thanisandra and Saraipalya Surrounding Area in Ward No. 06 Byatarayanapura Sub Division (2nd Call)
Agency	:	Sri. B. Girish, No.227, 32 A Cross, 7th Block, Jayananagara, Bangalore-560011.
Customer Reference	:	BBMP/EE/BTP/WO/213/2018-19
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	28-01-19
Sample Type/ Size	:	20mm down size coarse aggregate
Reference to BIS codes	:	IS: 383:2016 (Specification for Coarse and fine Aggregates) IS: 2386 :1963(Part - 1,3,4) RA2011 IS 2386 Part 1: Particle Size and Shape IS 2386 Part 3: Specific gravity, Density, Voids,Water Absorption IS 2386 Part 4: Mechanical Properties
Date of test	:	29-01-19

SIEVE ANALYSIS (PARTICLE SIZE DISTRIBUTION) OF 20MM DOWN COARSE AGGREGATE:

Total weight taken : 5000 grams

Sample No.	Sieve No.	Weight Retained in gms	Cumulative Weight Retained in gms	% Cumulative Weight Retained	% Passing	Required as per IS 383:2016
1	40 mm	0	0	0	100	100
2	20 mm	236	236	4.7	95.3	90-100
3	10 mm	2471	2707	54.1	45.9	25-55
4	4.75 mm	2134	4841	96.8	3.2	0-10
5	Pan	159	5000	100	0	_

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TEST REPORT ON COARSE AGGREGATES

Lab ID : **CP-2019-03-06-20** **Date: 31-01-19**

PHYSICAL PROPERTIES

Sl.no	Tests	Result	Requirements as per IS:383-2016
1	Flakiness Index(%)	13.2	Combined Flakiness & Elongation Index Shall not Exceed 40% for Uncrushed & Crushed Aggregate
2	Elongation Index(%)	12.6	
3	Specific Gravity	2.68	_
4	Bulk Density(Loose) (Kg/l)	1.55	_
5	Bulk Density(Compacted) (Kg/l)	1.59	_
6	Water Absorption(%)	0.23	_
7	Aggregate crushing Value(%)	24.6	Max 30% for Aggregates to be used in concrete for wearing Surface, In case Aggregate Crushing Value Exceeds 30% then the test for ten percent fines should be conducted for Aggregates to be used in concrete other than for wearing Surface.
8	Aggregate Impact Value(%)	22.9	30% for Aggregates to be used in concrete for wearing Surface, 45% for Aggregates to be used in concrete other than for wearing Surface.

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Quality Manager

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TEST REPORT OF FINE AGGREGATE

Lab ID	:	**CP-2019-03-06-20** **Date: 31-01-19**
Customer	:	Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP, Bangalore.
Address	:	Byatarayanapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements of Drains and Construction of Culverts in Hegadenagara, Thanisandra and Saraipalya Surrounding Area in Ward No. 06 Byatarayanapura Sub Division (2nd Call)
Agency	:	Sri. B. Girish, No.227, 32 A Cross, 7th Block, Jayananagara, Bangalore-560011.
Customer's Reference	:	BBMP/EE/BTP/WO/213/2018-19
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	28-01-19
Sample Type	:	Fine Aggregate
Reference to BIS codes	:	IS 383 : 2016 (Specification for Coarse and fine Aggregates) IS: 2386 :1963(Part - 1, 3) RA2012 IS 2386 Part 1: Particle Size and Shape IS 2386 Part 3: Specific gravity, Density, Voids,Water Absorption
Date of test	:	29-01-19
Total weight taken	:	1000 grams

Sl.no	Sieve Size	Weight Retained (gms)	Cumulative Weight Retained (gms)	% Cumulative Weight Retained	% Passing	Requirement as per IS 383:2016			
						Grading Zone I	Grading Zone II	Grading Zone III	Grading Zone IV
1	10 mm	0	0	0.0	100.0	100	100	100	100
2	4.75 mm	28	28	2.8	97.2	90-100	90-100	90-100	95-100
3	2.36 mm	56	84	8.4	91.6	60-95	75-100	85-100	95-100
4	1.18 mm	238	322	32.2	67.8	30-70	55-90	75-100	90-100
5	600 micron	206	528	52.8	47.2	15-34	35-59	60-79	80-100
6	300 micron	204	732	73.2	26.8	5-20	8-30	12-40	15-50
7	150 micron	192	924	92.4	7.6	0-10	0-10	0-10	0-15
8	Pan	76	1000	100.0	0.0	---	---	---	---
Result :The tested Sample Conforms to Grading Zone II									

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TEST REPORT OF FINE AGGREGATE

Lab ID : **CP-2019-03-06-20** **Date: 31-01-19**

PHYSICAL PROPERTIES

Sl.no	Tests	Result	Requirements as per IS 383:2016
1	Water Absorption(%)	1.6	–
2	Specific Gravity	2.58	–
3	Material finer than 75 micron(%)	6.8	Uncrushed fine Aggregate Max 3%, Crushed Fine aggregate Max 15%, Mixed Fine aggregate Max 12%, Manufactured Fine aggregate Max 10%

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TEST REPORT OF PRECAST COVER SLAB

Lab ID : **CP-2019-03-06-20** **Date: 06-02-19**

Customer : Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP, Bangalore.

Address : Byatarayanapura Sub Division, BBMP, Bangalore.

Project Name : Improvements of Drains and Construction of Culverts in Hegadenagara, Thanisandra and Saraipalya Surrounding Area in Ward No. 06 Byatarayanapura Sub Division (2nd Call)

Agency : Sri. B. Girish, No.227, 32 A Cross, 7th Block, Jayananagara, Bangalore-560011.

Customer's Reference : BBMP/EE/BTP/WO/213/2018-19

Source of Sample : Sample supplied by Agency

Sample Condition : Satisfactory

Date of Receipt : 02-02-19

Sample Type /Size : Precast Cover Slab

Reference to BIS codes : IS: 516 - 1959 Methods of Tests for Strength of Concrete

Date of test : 02/02/2019

Sl. No.	Identification Mark	Diameter of the core	Height of the core	Weight of the core	Area	Failure Load	Core Compressive strength	Corrected Cylinder Compressive strength	Equivalent Cube Compressive strength
		(mm)	(mm)	(kg)	(Sq.mm)	(KN)	(N/mm^2)	(N/mm^2)	(N/mm^2)
1	Cover Slab-1	200.46	250.48	3.116	31555	180.9	5.7	5.3	6.7
2	Cover Slab-2	200.49	250.52	3.122	31564	182.3	5.8	5.4	6.7
3	Cover Slab-3	200.59	250.51	3.118	31596	181.5	5.7	5.3	6.7

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : **CP-2019-03-06-20** **Date: 14/02/2019**

Customer : Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP, Bangalore.

Address : Byatarayanapura Sub Division, BBMP, Bangalore.

Project Name : Improvements of Drains and Construction of Culverts in Hegadenagara, Thanisandra and Saraipalya Surrounding Area in Ward No. 06 Byatarayanapura Sub Division (2nd Call)

Agency : Sri. B. Girish, No.227, 32 A Cross, 7th Block, Jayananagara, Bangalore-560011.

Customer's Reference : BBMP/EE/BTP/WO/213/2018-19

Source of Sample : Sample supplied by Agency

Sample Condition : Satisfactory

Date of Receipt : 09-02-19

Customer ID : PCC

Sample Type /Size : 150X150X150 mm

Sample grade/Age : M15 / 7 Days Compressive Strength

Reference to BIS codes : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

Date of test : 14/02/2019

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen (mm)	Cross sectional area (Sq.mm)	Weight of the sample (kg)	Failure Load (KN)	Compressive strength (N/mm^2)	Average Compressive Strength (N/mm^2)
1	PCC	M15	07/02/2019	14/02/2019	151.85 X 149.89 X 150.90	22761	**8.486**	295.7	13.0	12.6
2	PCC	M15	07/02/2019	14/02/2019	149.13 X 150.23 X 150.50	22405	**8.789**	269.1	12.0	
3	PCC	M15	07/02/2019	14/02/2019	149.52 X 149.04 X 150.48	22285	**8.924**	284.3	12.8	

Note:

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : **CP-2019-03-06-20** **Date: 14/02/2019**

Customer : Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP, Bangalore.

Address : Byatarayanapura Sub Division, BBMP, Bangalore.

Project Name : Improvements of Drains and Construction of Culverts in Hegadenagara, Thanisandra and Saraipalya Surrounding Area in Ward No. 06 Byatarayanapura Sub Division (2nd Call)

Agency : Sri. B. Girish, No.227, 32 A Cross, 7th Block, Jayananagara, Bangalore-560011.

Customer's Reference : BBMP/EE/BTP/WO/213/2018-19

Source of Sample : Sample supplied by Agency

Sample Condition : Satisfactory

Date of Receipt : 09-02-19

Customer ID : PCC

Sample Type /Size : 150X150X150 mm

Sample grade/Age : M15 / 7 Days Compressive Strength

Reference to BIS codes : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

Date of test : 14/02/2019

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen (mm)	Cross sectional area (Sq.mm)	Weight of the sample (kg)	Failure Load (KN)	Compressive strength (N/mm^2)	Average Compressive Strength (N/mm^2)
1	PCC	M15	07/02/2019	14/02/2019	151.10 X 151.87 X 151.72	22948	**8.486**	291.0	12.7	12.6
2	PCC	M15	07/02/2019	14/02/2019	151.80 X 150.28 X 150.80	22812	**8.789**	291.6	12.8	
3	PCC	M15	07/02/2019	14/02/2019	151.02 X 151.36 X 151.58	22859	**8.924**	278.9	12.2	

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : **CP-2019-03-06-20** **Date: 14/02/2019**

Customer : Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP, Bangalore.

Address : Byatarayanapura Sub Division, BBMP, Bangalore.

Project Name : Improvements of Drains and Construction of Culverts in Hegadenagara, Thanisandra and Saraipalya Surrounding Area in Ward No. 06 Byatarayanapura Sub Division (2nd Call)

Agency : Sri. B. Girish, No.227, 32 A Cross, 7th Block, Jayananagara, Bangalore-560011.

Customer's Reference : BBMP/EE/BTP/WO/213/2018-19

Source of Sample : Sample supplied by Agency

Sample Condition : Satisfactory

Date of Receipt : 09-02-19

Customer ID : PCC

Sample Type /Size : 150X150X150 mm

Sample grade/Age : M15 / 7 Days Compressive Strength

Reference to BIS codes : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

Date of test : 14/02/2019

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen (mm)	Cross sectional area (Sq.mm)	Weight of the sample (kg)	Failure Load (KN)	Compressive strength (N/mm^2)	Average Compressive Strength (N/mm^2)
1	PCC	M15	07/02/2019	14/02/2019	149.62 X 149.15 X 151.90	22315	**8.486**	289.6	13.0	12.7
2	PCC	M15	07/02/2019	14/02/2019	150.43 X 151.99 X 150.32	22863	**8.789**	275.5	12.1	
3	PCC	M15	07/02/2019	14/02/2019	151.29 X 149.68 X 149.92	22646	**8.924**	293.3	12.9	

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